

AMENDMENTS TO THE CLAIMS

Listing of Claims:

This Listing of Claims will replace all prior versions, and listings, of claims in the application:

1-9. (Cancelled)

10. (Currently amended) An apparatus comprising, a first channel comprising a restriction barrier comprising a first angled wall and a second angled wall positioned relative to the first angled wall to form a first opening at least 1 micron in width or diameter and a second opening less than 10 microns in width or diameter, wherein the first opening has a greater width or diameter than the second opening, further comprising a laser light source operable as an optical tweezers and a series of lenses to form a gradient force optical trap, a light source and a Raman detector to detect a single molecule by a surface enhanced Raman spectroscopy, the first channel being in optical communication with the light source and the Raman detector.

11. (Original) The apparatus of claim 10, wherein the second opening is less than 1 micron in width or diameter.

12. (Cancelled)

13. (Currently amended) A system comprising: a) a light source; b) a Raman detector configured to detect a single molecule by a surface enhanced Raman spectroscopy emission of a

~~molecule irradiated by the light source; and c)~~ a first channel in optical communication with the light source and the detector, wherein the first channel comprises a restriction barrier within the first channel, the restriction barrier comprising a plurality of walls to restrain movement of a single particle upstream of light emitted by the light source, wherein the particle has a diameter between 0.1 and 20 microns.

14. (Original) The system of claim 13, wherein the restriction barrier comprises a first angled wall and a second angled wall positioned relative to the first angled wall to form a first opening at least 1 micron in width or diameter and a second opening less than 10 microns in width or diameter, wherein the first opening has a greater width or diameter than the second opening.

15. (Cancelled)

16. (Previously Presented) The system of claim 14, further comprising a second channel forming a junction with the first channel.

17. (Original) The system of claim 16, wherein the restriction barrier is located upstream of the junction of the first channel and the second channel.

18. (Currently amended) The system of claim 17, ~~wherein further comprising a the~~ gradient force optical trap is positioned downstream of the junction of the first channel and the second channel.

19. (Original) The system of claim 18, wherein the light source is positioned downstream from the restriction barrier and upstream from the gradient force optical trap.

20. (Original) The system of claim 13, wherein a portion of a flow path in optical communication with the detection light source is coated with silver, gold, platinum, copper or aluminum.

21-45 (Cancelled)

46. (Currently amended) An apparatus comprising a first channel having a restriction barrier within the channel, the restriction barrier comprising a first angled wall and a second angled wall positioned relative to the first angled wall to form a first opening large enough to capture a single particle and a second opening small enough to prevent passage of the particle but large enough to allow passage of a biomolecule, wherein the first opening is at least 100 nm wide and the second opening is less than 10 microns wide, and wherein the first opening has a greater width or diameter than the second opening, further comprising a laser light source and a series of lenses to form a gradient force optical trap,

wherein the first channel is separate and distinct from the restriction barrier such that there is a gap between a wall of the channel and the restriction barrier.

47. (New) The apparatus of claim 10, further comprising a second channel forming a junction with the first channel.

48. (New) The apparatus of claim 10, wherein the restriction barrier is located upstream of the junction of the first channel and the second channel.

49. 48. (New) The apparatus of claim 10, wherein the gradient force optical trap is positioned downstream of the junction of the first channel and the second channel.

50. (New) The apparatus of claim 10, wherein the light source is positioned downstream from the restriction barrier and upstream from the gradient force optical trap.

51. (New) The apparatus of claim 46, further comprising a second channel forming a junction with the first channel.

52. (New) The apparatus of claim 46, wherein the restriction barrier is located upstream of the junction of the first channel and the second channel.

53. (New) The apparatus of claim 46, wherein the gradient force optical trap is positioned downstream of the junction of the first channel and the second channel.

54. (New) The apparatus of claim 46, wherein the light source is positioned downstream from the restriction barrier and upstream from the gradient force optical trap.

55. (New) The system of claim 13 wherein the first channel is separate and distinct from the restriction barrier such that there is a gap between a wall of the channel and the restriction barrier.

56. (New) The apparatus of claim 10, wherein the Raman detector is configured to detect a single nucleotide by surface enhanced Raman spectroscopy.

57. (New) The system of claim 13, wherein the Raman detector is configured to detect a single nucleotide by surface enhanced Raman spectroscopy.

58. (New) The apparatus of claim 46, further comprising a Raman detector configured to detect a single nucleotide by surface enhanced Raman spectroscopy.